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PCT/KR2004/000780

## PATENT COOPERATION TREATY

**PCT**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



|  |   |   |                       |
|--|---|---|-----------------------|
| Applicant's or agent's file reference<br>FA4P0403/001  | FOR FURTHER ACTION  |   | See Form PCT/IPEA/416 |
| International application No.<br><b>PCT/KR2004/000780</b>  | International filing date (day/month/year)<br><b>03 APRIL 2004 (03.04.2004)</b> | Priority date (day/month/year)<br><b>03 APRIL 2003 (03.04.2003)</b> |                       |
| International Patent Classification (IPC) or national classification and IPC<br><b>IPC7 F15B 15/24</b> |   |   |                       |
| Applicant<br><b>YOO, KEUN HYUNG</b>  |   |   |                       |

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 3 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

- (sent to the applicant and to the International Bureau) a total of \_\_\_\_\_ sheets, as follows:
  - sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
  - sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) \_\_\_\_\_, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- Box No. I Basis of the report
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

|   |   |
|---|---|
| Date of submission of the demand<br><b>27 OCTOBER 2004 (27.10.2004)</b>   | Date of completion of this report<br><b>29 JUNE 2005 (29.06.2005)</b>       |
| Name and mailing address of the IPEA/KR<br><br>Korean Intellectual Property Office<br>920 Dunsan-dong, Seo-gu, Daejeon 302-701,<br>Republic of Korea<br>Facsimile No. 82-42-472-7140 | Authorized officer<br><b>PAEK, Jin Wook</b><br>Telephone No. 82-42-481-5449 |



## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2004/000780

## Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

This report is based on translations from the original language into the following language English, which is the language of a translation furnished for the purposes of:

- international search (under Rules 12.3 and 23.1(b))
- publication of the international application (under Rule 12.4)
- international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

the international application as originally filed/furnished

the description:

pages \_\_\_\_\_ received by this Authority on \_\_\_\_\_ as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the claims:

pages \_\_\_\_\_ as originally filed/furnished  
 pages\* \_\_\_\_\_ as amended (together with any statement) under Article 19  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the drawings:

pages \_\_\_\_\_ as originally filed/furnished  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_  
 pages\* \_\_\_\_\_ received by this Authority on \_\_\_\_\_

the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.

3.  The amendments have resulted in the cancellation of:

the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets \_\_\_\_\_  
 the sequence listing (*specify*): \_\_\_\_\_  
 any table(s) related to sequence listing (*specify*): \_\_\_\_\_

4.  This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages \_\_\_\_\_  
 the claims, Nos. \_\_\_\_\_  
 the drawings, sheets \_\_\_\_\_  
 the sequence listing (*specify*): \_\_\_\_\_  
 any table(s) related to sequence listing (*specify*): \_\_\_\_\_

\* If item 4 applies, some or all of those sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY**

International application No.

PCT/KR2004/000780

**Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

|                               |        |      |     |
|-------------------------------|--------|------|-----|
| Novelty (N)                   | Claims | 1-4  | YES |
|                               | Claims | NONE | NO  |
| Inventive step (IS)           | Claims | 1-4  | YES |
|                               | Claims | NONE | NO  |
| Industrial applicability (IA) | Claims | 1-4  | YES |
|                               | Claims | NONE | NO  |

**2. Citations and explanations (Rule 70.7)**

Reference is made to the following documents:

D1: JP 04-34203 A (05 February 1992)

D2: JP 51-69768 A (16 June 1976)

D3: DE 3329171 A1 (28 February 1985)

D4: US 2002017190 A1 (14 February 2002)

**(1) Novelty**

The key feature of the present invention is the means to provide a rotational force to a rotational axis by converting a linear motion of a cylinder generated by fluid pressure into a rotational motion and to control the angular displacement. However, none of the documents D1 to D4 disclose means for controlling the angular displacement. Therefore, the subject matter of claims 1 to 4 seems to be novel (Article 33(2) PCT).

**(2) Inventive Step**

It would not be obvious to a person skilled in the art to combine the sensor of D4 for detecting the position of a piston with the actuator of D1 to D3, thereby achieving the function of controlling the angular displacement that the present invention has. Therefore, none of the documents D1 to D4 teach or fairly suggest the means for controlling the angular displacement, and consequently claims 1 to 4 meet the requirement of PCT Article 33(3).

(3) The present invention is industrially applicable to a hydraulic actuator for providing a rotational force to a rotational axis by converting a linear motion of a cylinder generated by fluid pressure into a rotational motion. Therefore, claims 1 to 4 meet the requirement of PCT Article 33(4).